

# INTERNATIONAL SEARCH REPORT

International Application No  
PCT/IB2004/001829

**A. CLASSIFICATION OF SUBJECT MATTER**  
IPC 7 F02D19/08 F02D41/00 F02P5/152

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
IPC 7 F02D F02M G01N F02P

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, PAJ, WPI Data

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2002/139111 A1 (TAKI MASAHIRO ET AL) 3 October 2002 (2002-10-03) paragraphs '0097! - '0101! paragraphs '0120! - '0124!	1,3-12
Y	US 5 109 821 A (IIDA KAZUMASA ET AL) 5 May 1992 (1992-05-05) abstract; figures 6,9 column 7, line 19 - line 23	1,3-12
A	US 3 503 722 A (WEBER HARRY R ET AL) 31 March 1970 (1970-03-31) column 1, lines 13-23 column 2, lines 1-26	1,12
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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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- "O" document referring to an oral disclosure, use, exhibition or other means
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Date of the actual completion of the international search

1 October 2004

Date of mailing of the international search report

08/10/2004

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	PATENT ABSTRACTS OF JAPAN vol. 2000, no. 19, 5 June 2001 (2001-06-05) & JP 2001 050070 A (NISSAN MOTOR CO LTD), 23 February 2001 (2001-02-23) cited in the application abstract	1,12
A	PATENT ABSTRACTS OF JAPAN vol. 016, no. 585 (M-1347), 25 December 1992 (1992-12-25) & JP 04 234571 A (HONDA MOTOR CO LTD), 24 August 1992 (1992-08-24) cited in the application abstract	1,12
A	GB 528 350 A (BATAAFSCHE PETROLEUM) 28 October 1940 (1940-10-28) page 1, lines 77-85	1,12

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No  
PCT/IB2004/001829

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2002139111 A1	03-10-2002	EP 1373698 A1 WO 02077429 A1 JP 2004522039 T	02-01-2004 03-10-2002 22-07-2004
US 5109821 A	05-05-1992	JP 2737336 B2 JP 3217638 A JP 4012171 A KR 9401334 B1	08-04-1998 25-09-1991 16-01-1992 19-02-1994
US 3503722 A	31-03-1970	NONE	
JP 2001050070 A	23-02-2001	EP 1057988 A2 US 6332448 B1	06-12-2000 25-12-2001
JP 04234571 A	24-08-1992	JP 2826911 B2	18-11-1998
GB 528350 A	28-10-1940	NONE	